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Environmental Effects of Dredging Technical Notes

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ROUTINE AND ATYPICAL WETLAND DETERMINATIONS ACCORDING TO CE WETLANDS DELINEATION MANUAL

PURPOSE: This article summarizes the methods for delineating wetlands that have been published as the Corps of Engineers Wetlands Delineation Manual.* It provides an abbreviated version of the manual and lists the wetland indicators and steps in the basic procedure for making routine and atypical wetlands determinations. This procedure does not replace that described in the manual, but serves as a reminder of steps required for making wetland determinations. The user should be familiar with both the manual and the terms used in this reference; many details and cautionary statements contained in the manual are omitted here. The user is referred to the manual for details. This abbreviated version is also being printed on waterproof paper in a size that will fit into the loose-leaf binder used for the Munsell soil color charts and will serve as a field reference.

BACKGROUND: Section 404 of the Clean Water Act gives authority to the Secretary of the Army, acting through the Chief of Engineers, to regulate the discharge of dredged or fill material into "waters of the United States." The term "waters of the United States" has broad meaning and incorporates both deepwater aquatic habitats and special aquatic sites including wetlands. Although all special aquatic sites are subject to provisions of the Clean Water Act, the manual considers only wetlands. The manual is a product of the Wetlands Research Program and was designed to provide precise and technically defensible methods for the delineation of wetlands, which is essential to regulatory, planning, and construction activities. The manual is presently being evaluated by the Corps Districts. The evaluation period is 1 year, and comments are expected in early 1988.

ADDITIONAL INFORMATION OR QUESTIONS: Points of contact for information concerning this article or questions relating to the Wetlands Research Program are Mr. Russell F. Theriot, Comm. or FTS (601)634-2733, or Dr. Robert M. Engler, Manager, Environmental Effects of Dredging Programs, (601)634-3624.

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* Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, Miss.

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Wetland Indicators

Wetlands delineation is based on three environmental parameters: vegetation, soil, and hydrology. Positive wetland indicators of all three parameters will be present in wetlands except in atypical situations or abnormal environmental conditions. (Appendixes C and D and Data Forms 1 and 3 mentioned below are found in the manual.)

Hydrophytic Vegetation

1. More than 50 percent of dominant species are classified as FAC, FACW, or OBL on regional lists of plant species that occur in wetlands (Appendix C).
2. Other indicators of hydrophytic vegetation include:
   a. Visual observation of plant species growing in areas of prolonged inundation or soil saturation.
   b. Morphological adaptations.
   c. Technical literature indicates that dominants are hydrophytic.
   d. Physiological adaptations.
   e. Reproductive adaptations.

Hydric Soil

1. Organic soil.
2. Histic epipedon present.
3. Sulfidic material present (rotten egg odor).
4. Aquic or peraquic moisture regime.
5. Anaerobic soil conditions for more than 7 consecutive days during the growing season.
6. Soil color:
   a. Gleyed.
   b. Matrix chroma of 2 or less* in mottled soils.
   c. Matrix chroma of 1 or less* in unmottled soils.
7. Soil series on hydric soils list (Appendix D).
8. Iron and manganese concretions present.
9. Organic layer (3 inches or more) over sandy soil.
10. Organic pans in sandy soil.
11. Organic streaking of subsurface horizons in sandy soil.

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* Colors should be determined in soils that have been moistened; otherwise, state that colors are for dry soils.

Wetland Hydrology

1. Recorded data from stream, lake, and/or tidal gages indicate that the area is periodically inundated during growing season.
2. Field indicators of wetlands hydrology include:
   a. Visual observation of inundation.
   b. Visual observation of saturated soil (upper 12 inches).
   c. Watermarks.
   d. Drift lines.
   e. Sediment deposits including encrusted detritus.
   f. Drainage patterns in low areas.

{ Consider recent rainfall

Methods

Preliminary Data Gathering and Synthesis*

Extract information on vegetation, soil, and hydrology of the area from all available sources. The manual lists potential sources of information. Decide whether information for each parameter is sufficient to enable a determination without an onsite visit.

Three procedures for wetland determinations are described in the following pages: determinations where no site visit is necessary; procedure when an onsite visit is required; and procedure when the area has been recently altered (i.e., atypical situations). Terminal decisions are indicated by capital letters WETLANDS or NONWETLANDS.

Wetland Determinations (No Site Visit Necessary)

1. Identify community type(s). Must know dominant plant species of each type.
2. Compare data to list of hydrophytic vegetation indicators. One of the following will apply:
   a. *No hydrophytic vegetation indicator present*: NONWETLAND.
   b. *Hydrophytic vegetation indicator present; all dominants OBL and/or FACW*:
      (1) Look for evidence of hydrologic alteration. If none, WETLAND.
      (2) If hydrologic alteration has occurred, go to c.

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* Omit the preliminary data gathering and synthesis if a decision has been made that it is more practical to conduct an onsite visit.

c. *Hydrophytic vegetation indicator present; one or more dominant species FAC:*

(1) Look for indicator of wetland hydrology. If absent, NONWETLAND.

(2) If present, look for indicator of hydric soil.

(a) Indicator present: WETLAND.

(b) No indicator present: NONWETLAND.

3. Complete Data Form 1 for each community type. If all are wetland types, the entire area is WETLAND. If not, determine community types that meet one of the above conditions. The boundary of these community types is the wetland boundary.

Wetland Determinations
(Onsite Visit Necessary)

Determine the size of the area and whether there is evidence of alteration of one or more of the three environmental parameters used to identify wetlands (i.e., hydrophytic vegetation, hydric soil, and wetland hydrology). The following procedures are appropriate for typical areas of 5 acres or less, typical areas greater than 5 acres, and atypical situations when the area has been recently altered.

1. *Typical areas of 5 acres or less.* Complete the following actions.

a. Identify plant community types.

b. Select a representative observation point in each type.

c. Visually determine dominant plant species at each point and record on Data Form 1 (use separate form for each point).

d. Record indicator status of each dominant species from Appendix C.

e. Hydrophytic vegetation is present if more than 50 percent of dominant species are FAC, FACW, and/or OBL.

(1) If not, NONWETLAND.

(2) If all dominants are FACW and/or OBL and the community boundary is abrupt, go to f.

(3) If one or more dominant species is FAC, FACU, or UPL, or if the community boundary is not abrupt, go to g.

f. Look for evidence of recent hydrologic alteration (e.g., dikes, levees, drainage ditches, etc.).

(1) If not altered, WETLAND.

(2) If altered, go to g.

g. Look for indicator of wetland hydrology.

(1) If present, area has wetland hydrology. Go to h.

(2) If not, NONWETLAND.

h. If soil series is known, determine whether on list of hydric soils (Appendix D).

(1) If so, WETLAND.

(2) If soil is not listed as hydric, dig a soil pit and examine soil at 10 to 12 inches (or below the A-horizon) for hydric soil indicator.

(a) If indicator found, WETLAND.

(b) If not, NONWETLAND unless abnormal environmental conditions are present. If so, go to i.

i. Determine whether environmental conditions are normal.

(1) If so, go to j.

(2) If not, interpret collected data considering normal environmental conditions. Go to j.

j. Complete a data form for each point. Examine completed forms and combine all wetland community types into one unit. These are the wetlands of the area.

2. *Typical area greater than 5 acres.* The basic procedure for making a wetland determination at a given point was given for typical areas of less than 5 acres. The major procedural difference in areas greater than 5 acres is that observation points are established at points along transects. This procedure is as follows:

a. Establish a baseline parallel to direction of major flow through the area and determine baseline length.

b. Divide baseline length by number of required transects. As a guide, use three transects when baseline length is 1 mile or less; three to five transects when baseline length is 1 to 2 miles; five to eight transects when baseline length is 2 to 4 miles; or locate transects at 0.5-mile intervals when baseline length exceeds 4 miles.

c. Establish transect starting point at midpoint of each baseline segment. If necessary, relocate one or more transects to include all community types.

d. Select observation point in first community encountered along first transect.

e. Apply procedure given for areas of less than 5 acres and determine whether point is in a wetland. Complete Data Form 1 for this and subsequent points.

f. Continue along transect until a second community type is encountered.

g. Apply procedure given for areas of less than 5 acres and determine whether this point is in a wetland.

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(1) If both points are in either wetlands or nonwetlands, go to the next community type along the transect and determine whether it is a wetland.

(2) If one point is in a wetland and the other is not, make additional wetland determinations between these points until wetland boundary is located. Complete Data Form 1 for this location and mark the boundary location on map.

h. Locate observation points in all other community types along each transect and make wetland determination at each. Locate any wetland boundaries occurring between these points and mark them on the map.

i. Connect points on the map that represent wetland boundaries, following contours when a contour map is available. Walk wetland boundary and adjust boundary line on map as necessary (this sometimes requires additional wetland determinations).

3. *Atypical Situations.* Apply the following procedures when evidence indicates recent unauthorized activities or natural events that preclude characterization of one or more parameters. Use Data Form 3 to record information.

a. Vegetation.

(1) Describe type of alteration (e.g., clear-cutting, selective removal of certain species).

(2) Document effect of alteration on vegetation.

(3) Characterize previous vegetation. Obtain all necessary supporting evidence. Some potential sources include:

(a) Aerial photography.

(b) Onsite inspection of remaining vegetation.

(c) Previous inspections.

(d) Adjacent vegetation.

(e) Soil Conservation Service records.

(f) Permit applicant.

(g) Public.

(h) National Wetlands Inventory maps.

(4) Record indicator status of dominant species from Appendix C.

(a) If more than 50 percent were FAC, FACW, and/or OBL, previous vegetation was hydrophytic.

(b) If condition in (a) is not satisfied, NONWETLAND.

(c) If previous vegetation could not be characterized, base decision on soil and hydrology (b and c, respectively).

(5) Complete vegetation section of Data Form 3.

(a) Return to paragraph 1 and complete determination if no other parameter has been altered.

(b) If either soil or hydrology has been altered, go to b or c.

b. Soil.

(1) Describe type of alteration (e.g., filled, surface layers removed, plowed).

(2) Document effect of alteration on soil.

(3) Characterize previous soil. Obtain all necessary supporting evidence. Some potential sources include:

(a) Soil surveys.

(b) Characterization of buried soil.

(c) Characterization of plowed soil.

(d) Adjacent unaltered soil. (Area must be in same topographic position and nearby.)

(e) Remnant profile (where soil layers have been removed).

(4) Determine whether previous soil was hydric by applying indicators.

(a) If indicator found, hydric soil was formerly present.

(b) If no indicator found, NONWETLAND.

(c) If previous soil could not be characterized, base decision on vegetation and hydrology (a and c, respectively).

(5) Complete soil section of Data Form 3.

(a) Return to paragraph 1 and complete determination if no other parameter has been altered.

(b) If either vegetation or hydrology has been altered, go to either a or c.

c. Hydrology.

(1) Describe type of alteration (area leveed, diked, drained, etc.).

(2) Describe effect of alteration on hydrology.

(3) Characterize previous hydrology. Obtain all necessary supporting evidence. Some potential sources include:

(a) Stream, lake, or tidal gage data.

(b) Field indicators.

(c) Aerial photography.

(d) Historical records.

(e) Floodplain management maps.

(f) Public or local officials.

(4) Determine whether wetland hydrology previously occurred by applying wetland hydrology indicators.

(a) If indicator found, wetland hydrology was formerly present.

(b) If no indicator found, NONWETLAND.

(c) If previous hydrology could not be characterized, base decision on vegetation and soil (a and b, respectively).

(5) Complete hydrology section of Data Form 3.

(a) Return to paragraph 1 and complete determination if no other parameter has been altered.

(b) If either vegetation or soil has been altered, apply procedure in a or b.